

Application No. 10/707,999  
Docket No. A4-1719  
Amendment dated February 19, 2007  
Reply to Office Action of October 19, 2006

### **REMARKS**

Applicants wish to thank the Examiner for withdrawing the finality of the previous Office Action.

In the Office Action, the Examiner reviewed claims 1-4 and 6-25 of the above-identified US Patent Application, of which claims 3, 7-12, 15, and 17-25 are withdrawn from consideration due to a restriction requirement, claim 4 was objected to, and claims 1, 2, 4, 6, 13, 14, and 16 were rejected under 35 USC §103 in view of U.S. Patent No. 5,939,146 to Lavernia. In response, Applicants have amended the claims as set forth above. More particularly:

Independent claim 1 has been amended to reinsert "particulates" as a possible shape of the chips, and the grain size limitation has been canceled.

Independent claims 1, 13, and 17 have been amended to require that the chips are characterized primarily by plane strain deformation, and independent claims 1 and 13 have been further amended to require that, if the product consists essentially of the chips, the chips are held together by consolidation and sintering. Support for these limitations can be found in Applicants' specification at Paragraph [0022] and [0032].

Applicants believe that the above amendments do not present new matter. Favorable reconsideration and allowance of claims 1-4 and 6-25 are

Application No. 10/707,999  
Docket No. A4-1719  
Amendment dated February 19, 2007  
Reply to Office Action of October 19, 2006

respectfully requested in view of the above amendments and the following remarks.

### **Objection to the Claims**

The Examiner objected to claim 4 under 37 CFR §1.75(c) as reciting a broader grain size range than its parent claim 1, and therefore "of improper dependent form for failing to further limit the subject matter of a previous claim." As indicated above, claim 1 has been amended to remove the grain size limitation, such that Applicants respectfully believe that the objection under 37 CFR §1.75(c) is overcome.

### **Rejection under 35 USC §103**

Lavernia forms a powder by "powder synthesis" (column 2, line 29, of Lavernia), and describes this process as producing nanocrystalline particles through "mechanical alloying . . . by which the microstructure of elemental or pre-alloyed powder particles is modified by repeated mechanical welding and fracture events" (Lavernia at column 2, lines 28-30; column 4, line 7-column 5, line 9). The resulting powder of agglomerated particles is then "consolidated" by a thermal spray process (column 2, lines 34-35).

Application No. 10/707,999  
Docket No. A4-1719  
Amendment dated February 19, 2007  
Reply to Office Action of October 19, 2006

With the above in mind, Applicants provide herewith their Declaration under 37 CFR §1.132, by which they explain that Applicants' chips are physically distinguishable from the agglomerated particles produced by Lavernia in terms of strain deformation, and Applicants' consolidated product is physically distinguishable from the thermally sprayed coating produced by Lavernia because thermal spray processes inherently cause at least partial melting of the agglomerated particles. As such, Lavernia's particles are not sintered (a process that entails heating a material below its melting point) and at least a portion of their nanocrystalline microstructure is completely destroyed by melting. Therefore, Lavernia's thermal sprayed coating/product is not formed of "chips . . . held together by consolidation and sintering" and cannot be "a monolithic material consisting essentially of a nanocrystalline microstructure" as required by Applicants' claim 1.

For the above reasons, Applicants believe that the products recited in independent claim 1 are patentably distinguishable from the products produced with the agglomerated materials of Lavernia, and likewise U.S. Patent No. 4,909,840 to Schlump, which is also limited to disclosing agglomerated materials.

Application No. 10/707,999  
Docket No. A4-1719  
Amendment dated February 19, 2007  
Reply to Office Action of October 19, 2006

### **Restriction Requirement**

In the Office Action of March 9, 2005 (Paper No. 030705), the Examiner imposed a restriction requirement, but stated

Upon allowance of a generic claim, applicant will be entitled to consideration to additional species which are written in dependent form or otherwise include all of the limitations of an allowed generic claim as provided by 37 CFR 1.141.

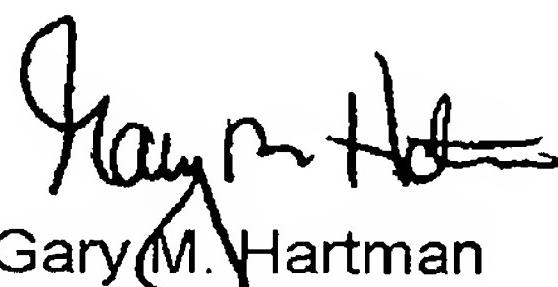
As noted above, Applicants believe that independent claim 1 is allowable over the prior art. Applicants further believe that claim 1 is generic, because independent claims 13 and 17 "include all of the limitations" of claim 1. Therefore, as provided by 37 CFR 1.141, Applicants believe they are "entitled to consideration to additional species which are written in dependent form," namely, withdrawn claims 3 and 7-12 which depend from claim 1, and "entitled to consideration to additional species which . . . otherwise include all of the limitations of [claim 1]," namely, withdrawn claims 15 and 17-25.

Application No. 10/707,999  
Docket No. A4-1719  
Amendment dated February 19, 2007  
Reply to Office Action of October 19, 2006

**Closing**

The Examiner is invited to discuss the above with Applicants' representative, who may be reached at (219) 462-4999.

Respectfully submitted,

By   
Gary M. Hartman  
Reg. No. 33,898

February 19, 2007  
Hartman & Hartman, P.C.  
Valparaiso, Indiana 46383  
TEL.: (219) 462-4999  
FAX: (219) 464-1166

Attachments: Rule 132 Declaration; Petition for Extension of Time (two copies)